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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/788,444 02/21/01 PARRIAUX

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EXAMINER

MMC2/0607

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ART UNIT

PAPER NUMBER

2877

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

## Office Action Summary

Application No.

09/788,444

Applicant(s)

Parriaux

Examiner

Samuel A. Turner

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☒ All b) ☐ Some \* c) ☐ None of the CERTIFIED copies of the priority documents have been:
1. ☐ received.
2. ☒ received in Application No. (Series Code / Serial Number) PCT/EP99/06057.
3. ☐ received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

### Attachment(s)

- 14) ☒ Notice of References Cited (PTO-892)
- 15) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 16) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 17) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 18) ☐ Notice of Informal Patent Application (PTO-152)
- 19) ☐ Other: \_\_\_\_\_

### Office Action

The title of the invention is not descriptive. A new title is required that is clearly indicative of the **invention** to which the claims are directed.

#### Rejections Under 35 U.S.C. § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-30 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are generally narrative and indefinite, failing to conform with current U.S. practice and are replete with grammatical and idiomatic errors.

In claims 1-8, 14-17, 20, 23-25, and 30 the phrase "where appropriate" is confusing in that the phrase fails to distinctly define the claimed subject matter.

When are the additional gratings appropriate ?

#### Rejections Under 35 U.S.C. § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, and 18-20 are rejected under 35 U.S.C. § 102(b) as being clearly anticipated by Kaneda et al(0 672 891 EP). See figure 4.

Claims 1, 7, 9, and 11-13 are rejected under 35 U.S.C. § 102(b) as being clearly anticipated by Rassudova et al(ref. E). See figure 2b.

### **Rejections Under 35 U.S.C. § 103**

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-6, 14-17, 21-23, 25, 29 and 30 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kaneda et al(0 672 891 EP).

Kaneda et al teach a light source(1), lens(4), first grating(G1), moveable second grating(G2), third grating(G3), and detector(3), the first and third gratings located on the same substrate. See figure 4. The source, first and third gratings, and detector can be integrated into a single housing, see figure 5. A measurement arrangement in both directions along the moveable grating, which would add a second detector, is shown in figure 3. Not taught is the movement of the first grating, source and detector integrated into the substrate holding the gratings, displaced gratings which would provide phase shifts in the detected interference

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signal, an X-Y movement configuration, or placing the sensor in specific objects.

Regarding claims 2-4; it would have been obvious to one of ordinary skill in the art at the time the invention was made to move either the second grating or the first and third gratings because the sensor detects the relative movement between the two substrates. Thus movement of either can be detected.

With regard to claims 5, 6, 21, and 22; it would have been obvious to one of ordinary skill in the art to integrate the light source and/or the detector into the grating substrates to reduce the size of the sensor. The integration of light sources and detectors into such substrates being well known to the skilled artisan in the grating displacement sensor art.

With regard to claims 29 and 30; it would have been obvious to one of ordinary skill in the art to place the sensor into any object in which fine movement is to be measured. Grating sensors of the type are use for linear, rotational, and angular detection.

Claim 28 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Kaneda et al(0 672 891 EP) as applied to claims 2-6, 21-23, 25, 29 and 30 above, and further in view of Ishii et al(5,666,196).

Ishii et al teach the use of a grating displacement sensor which has been expanded to measure movement in both the X and the Y directions. See figure 2a. Note the shifted gratings(3C1,3C2) and split detectors(4C1,4C2) used to generate the phase shifted output signals.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add additional gratings and detectors such that movement in both the X and Y directions can be measured.

Claims 2-6, 8, 10, 21, 22, 29, and 30 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Rassudova et al(ref. E).

Rassudova et al teach a generic grating sensor wherein the input beam is incident at an angle  $\alpha$  with the grating substrate. See figure 2b. When the desired orders are the +1 and -1 orders, then the grating constants(periods) are  $d_1$ (first grating) and  $d_2$  (second grating) where  $d_1=2 d_2$ , see equation 5. Not taught is the movement of the first grating, source and detector integrated into the substrate holding the gratings, displaced gratings which would provide phase shifts in the detected interference signal, an X-Y movement configuration, or placing the sensor in specific objects.

Regarding claims 2-4; it would have been obvious to one of ordinary skill in the art at the time the invention was made to move either the second grating or the first grating because the sensor detects the relative movement between the two substrates. Thus movement of either can be detected.

With regard to claims 5, 6, 21, and 22; it would have been obvious to one of ordinary skill in the art to integrate the light source and/or the detector into the grating substrates to reduce the size of the sensor. The integration of light sources and detectors into such substrates being well known to the skilled artisan in the

grating displacement sensor art.

With regard to claims 29 and 30; it would have been obvious to one of ordinary skill in the art to place the sensor into any object in which fine movement is to be measured. Grating sensors of the type are use for linear, rotational, and angular detection.

Claims 23-27 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Rassudova et al(ref. E)as applied to claims 2-6, 8, 10, 21, 22, 29, and 30 above, and further in view of Kaneda et al(0 672 891 EP).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Rassudova to form a measurement arrangement in both directions along the moveable grating, which would add a second detector, see figure 3 of Kaneda.

Claims 18-20, and 28 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Rassudova et al(ref. E)as applied to claims 2-6, 8, 10, 21, 22, 29, and 30 above, and further in view of Ishii et al(5,666,196).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add additional gratings and detectors such that movement in both the X and Y directions can be measured.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samuel A. Turner whose telephone number is **(703) 308-4803**. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font, can be reached on (703) 308-4881.

The fax phone number for this Group is (703) 308-7722. The faxing of papers related to this application must conform with the notice published in the Official Gazette, 1096 O.G. 30 (15 November 1989). The Group receptionist telephone number is (703) 308-0956.

Any inquiry of a technical nature regarding reissues, petitions, and terminal disclaimers should be directed to Ed Glick whose telephone number is (703) 308-4858, Hien Phan whose telephone number is (703) 308-7502, or Ed Westin whose telephone number is (703) 308-4823.

Any other inquiry of a technical nature, and all inquiries of a general nature including those relating to the status of this application or any patent term adjustment should be directed to TC2800 Customer Service Office whose telephone number is (703) 306-3329.



Samuel A. Turner  
Primary Examiner  
Art Unit 2877

SAT  
June 2, 2001